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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/897,106	07/03/2001	Xiaochuan Zhou	4222-4002US1	9228
21586	7590	10/07/2005		
VINSON & ELKINS, L.L.P. 1001 FANNIN STREET 2300 FIRST CITY TOWER HOUSTON, TX 77002-6760			EXAMINER HANDY, DWAYNE K	
			ART UNIT	PAPER NUMBER
			1743	

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/897,106

Applicant(s)

ZHOU ET AL.

Examiner

Dwayne K. Handy

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-13,15,16,18,20-25,27-30,35,39-43,48,100,106 and 164-168 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-13,15,16,18,20-25,27-30,35,39-43,48,100,106 and 164-168 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Inventorship

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-4, 8, 9, 18, 20-25, 29, 30, 35, 39-43 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mian et al. (6,319,469) in view of Kellogg et al. (6,143,248). This rejection remains in effect. Please see Response to Arguments below.

The Examiner notes that claims 35 and 39-43 were inadvertently left out of the previous rejection, but have been added to the rejection in this action. Mian teaches filtration materials and beads in column 16.

4. Claims 15, 100, 106 and 164-168 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mian et al. (6,319,469) and Kellogg et al. (6,143,248) and further in view of Zanzucchi et al. (5,643,738).

Claims 5 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mian et al. (6,319,469) and Kellogg et al. (6,143,248) and further in view of Demers (5,840,256).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mian et al. (6,319,469) and Kellogg et al. (6,143,248) and further in view of Stabile et al. (5,872,623).

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mian et al. (6,319,469) and Kellogg et al. (6,143,248) and further in view of Sheppard et al. (6,143,247).

These rejections were made in the previous action (mailed 12/30/2004) and remain in effect.

Response to Arguments

5. Applicant's arguments filed 9/13/2005 have been fully considered but they are not persuasive. In traversing the rejection(s) made by the Examiner in the previous action, applicant has directed all arguments to the combination of the references Mian and Kellogg. Applicant has argued that (1) Mian does not teach tapered cells; (2) one would not be motivated to combine the references; and (3) the combination of references would not result in the claimed structure. The Examiner respectfully disagrees on all counts.

6. The Examiner has already conceded that Mian does not disclose tapered channels. The Examiner is relying on Mian (Figure 1A) for a teaching of a plurality of reaction cells (12, 14, 16, 18, 20, 22) in fluid communication with a plurality of fluid channels having valves (13, 15, 17, 19, 21, 23). Mian teaches that the valves may comprise capillary microvalves that rely upon a change in cross-sectional area of a channel to control fluid in the channel (column 19, lines 24-63). Mian does not specifically recite tapered channels - these are provided by Kellogg. Kellogg teaches capillary valves as tapered channels that may be used as valves (Figures 2B and 9) as well as concentration elements (Figure 10). Therefore, the Examiner believes that one of ordinary skill in the art would have several reasons to combine the tapered channel

from Kellogg with the device of Mian. The first would be to provide the tapered channel as the valve structure in Mian. The second would be to take advantage of the concentrating scheme of Kellogg shown in Figure 10.

7. Applicant has also argued that the combination of the two references would result in a device that cannot operate and does not have tapered channels that are in fluid communication with a plurality of reaction cells. The Examiner again respectfully disagrees. The Examiner again refers applicant to Figure 1A of Mian. As fluids travel through Mian's system, they pass towards the edge of the disk (left to right in the figure). Therefore, the Examiner believes one of ordinary skill in the art would recognize to place the tapered valve in the proper direction based on Kellogg's teaching to allow the tapered portion to act like a valve! This is one of the two reasons for using the tapered channel. As for applicant's arguments suggesting that the channels and cells lack fluid communication, the Examiner believes that all of the features shown in Figure 1A are in "fluid communication" with each other. The term – "in fluid communication" does not convey any specific structural requirement to the various elements other than to require them to be connected in some manner. The Examiner believes Mian clearly shows this feature.


Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwayne K. Handy whose telephone number is (571)-272-1259. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DKH
October 1, 2005


Jill Warden
Supervisory Patent Examiner
Technology Center 1700